

Philips Lighting

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Professional Lighting solutions
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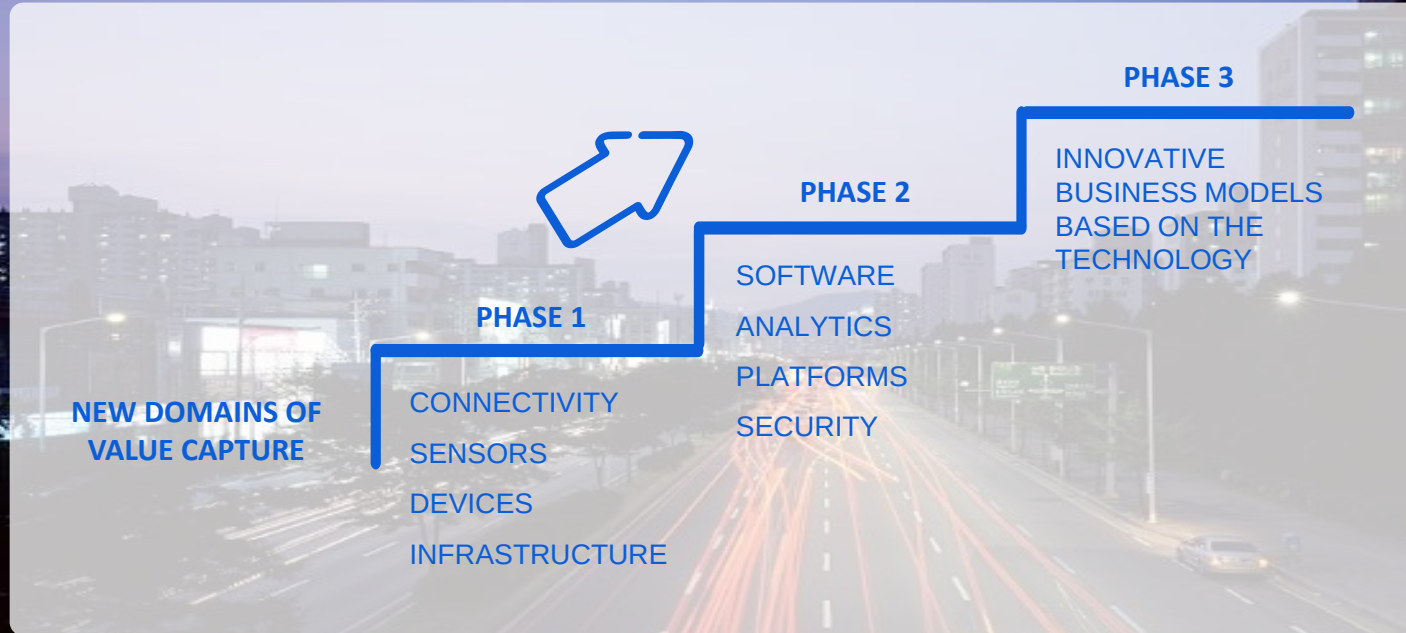
Introduction



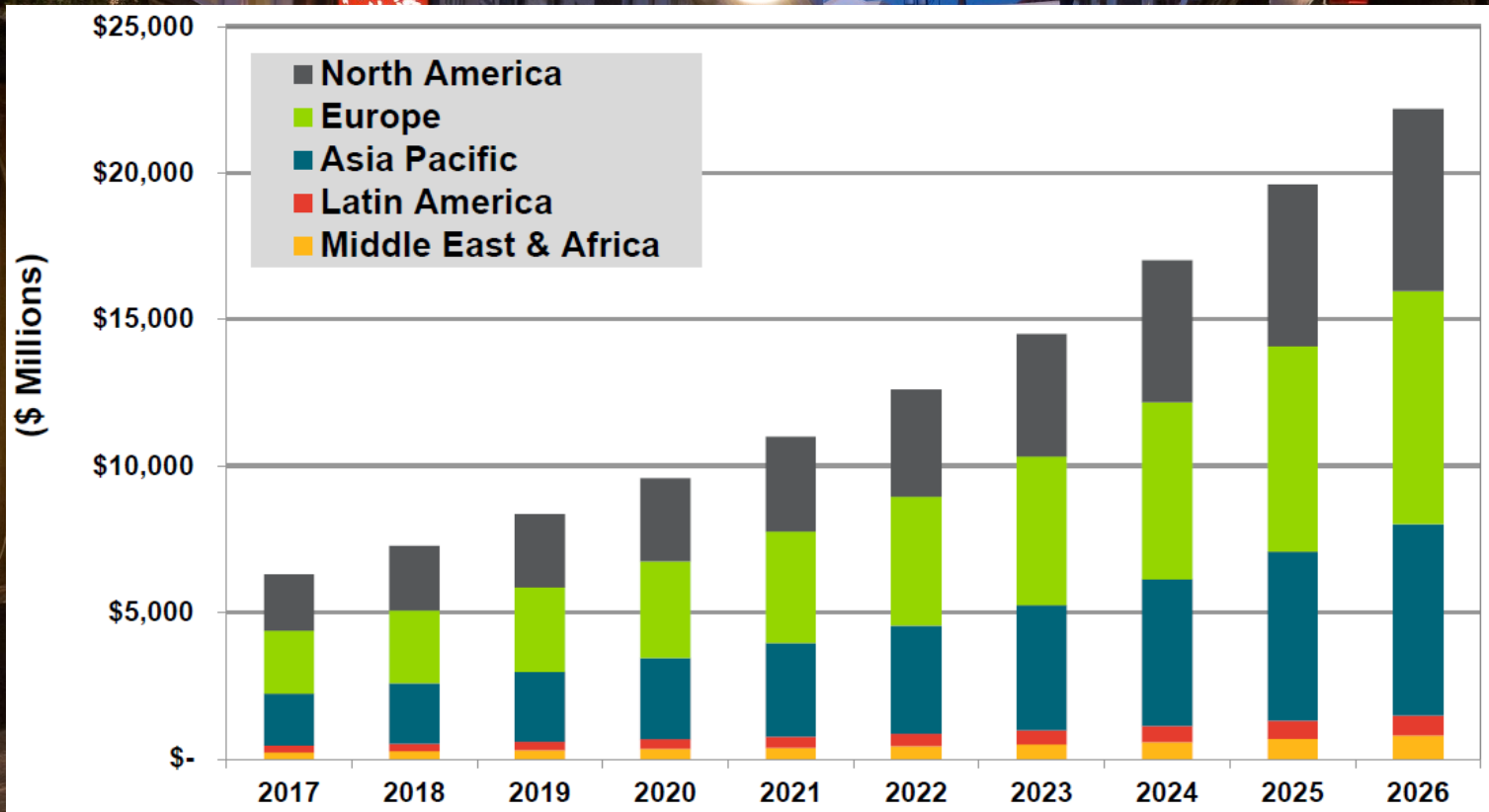
What is IoT?

The **Internet of Things (IoT)**, sometimes **Internet of Everything** is the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable it to achieve greater value and service by exchanging data with the manufacturer, operator and/or other connected devices. Each thing is uniquely identifiable through its embedded computing system but is able to **interoperate** within the existing Internet infrastructure. Experts estimate that the IoT will consist of 30-50 billion objects by 2020.

Where Are We Now?



IoT for Intelligent Buildings



Smart Building Trends

It is about the occupant, now



Average office expenditures

Cost per square meter per year:



1%

for utilities



9%

for rent



90%

for payroll

Workplace **history**

Early 20th Century

- Fixed desks
- Task oriented
- Strict hierarchies
- No worker empowerment



Mid 20th Century

- Open plan offices
- Increase in communications
- Beginnings of electronics
- More efficient working methods
- Still task oriented autonomous working



Late 20th Century

- Computer technology introduced
- Democratization of workplace
- Collaborative working
- Portable communications
- Flexitime
- Hot desking



Early 21st Century

- Workplace efficiency
- Health and wellbeing identified
- Environmental concerns
- Digital connectivity
- Desire for control and choice
- Employee empowerment
- Productivity and efficiency focus
- Collaboration via digital means, e.g. Skype



Challenges of the modern office



Less than
50%

of average office
space is utilized



\$10K

Average cost
per desk per year



33%

of all meetings are
unplanned and quickly
finding space is challenging



20%

of meeting rooms
booked out are not being
used at any one time

Trends

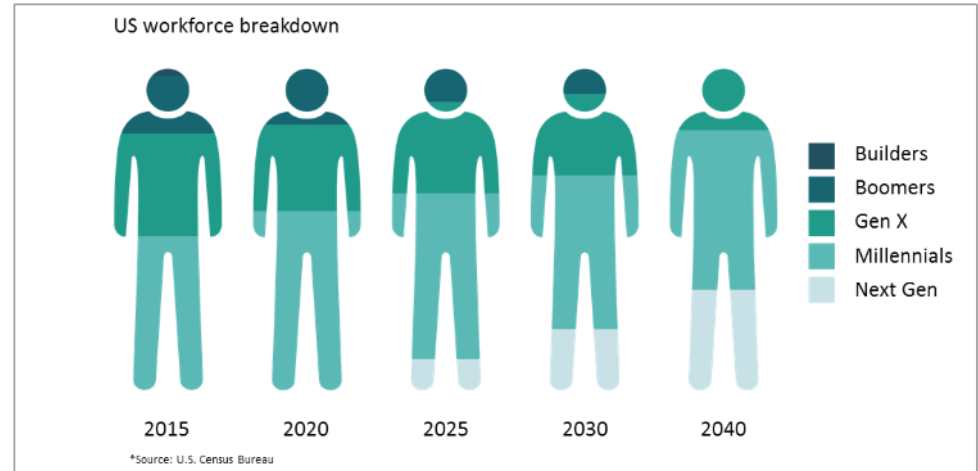


Demographic trends

- Generation X, Y, Z co-workers
- Different working styles and needs
- Digital revolution
- Mobile working
- Need for flexibility to support all types of workers



Millennials are not kids anymore



Key drivers for our customers

Four key drivers that are changing the workplace now and will continue to shape it in the future.



Green
buildings



Connectivity



Health and
wellbeing



Engagement
and
experience

Green buildings



Green buildings

The value of building green



30 - 50%
reduction in energy use*

Source: United Nations Environment
Programme(UNEP) 2012



Up to 16%
increase in asset value

Source: (August 1, 2009), American Economic Review



35% decrease
in carbon emissions*

Source: United Nations Environment
Programme(UNEP) 2012



Living buildings



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Biophilic design



Credit Agricole, Paris



Health and wellbeing

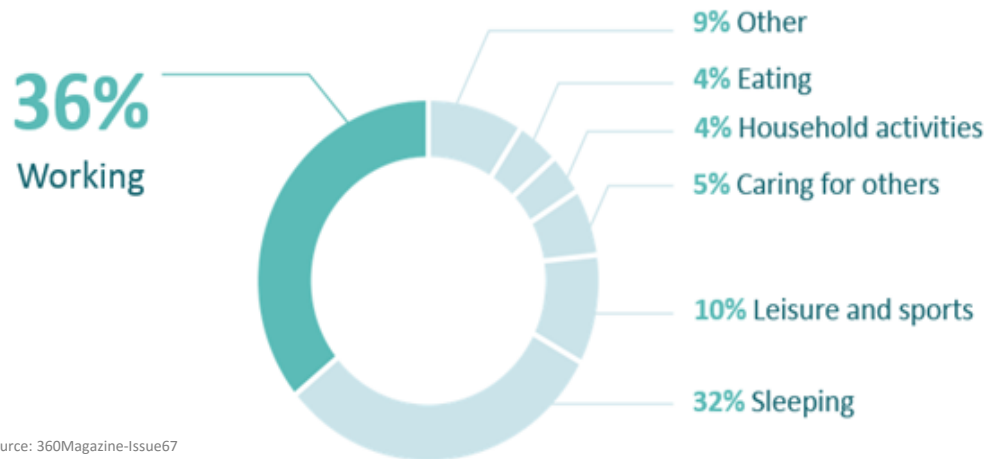


Health & Wellbeing



Health and
wellbeing

Today people spend more time working than anything else, **even sleeping:***



We spend 90% of our time **Indoors!**

More buildings getting “WELL” certified....



Health and
wellbeing



Seven Concepts



Impact of Lighting



Health and
wellbeing



Humans need light

Light allows us to see

Light allows us to experience the environment

Light regulates our circadian rhythm

Light influences our mental functioning

“People who appraise their lighting as good will also appraise the room as more attractive, be in a **more pleasant mood**, be **more satisfied** with the work environment, and **more engaged** in their work.”

Extract from: “Linking Lighting Appraisals to Work Behaviors” Jennifer A. Veitch, Mariska G. M. Stokkermans and Guy R. Newsham Environment and Behavior 2013 45: 198 originally published online 16 September 2011

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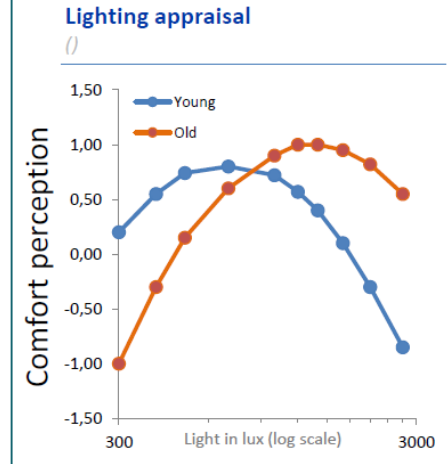
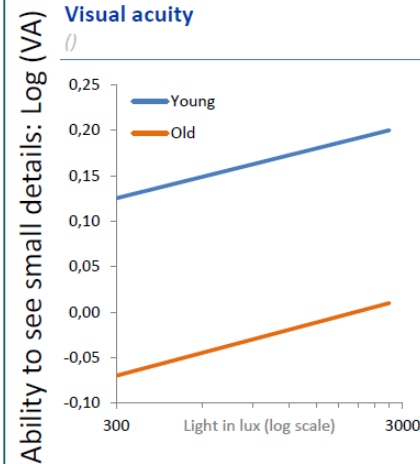
The aging workforce

One size doesn't fit all



Health and
wellbeing

- A 60-year-old person needs significantly more light than a 20-year-old to see **the same visual detail**.
- Aging also affects the vision in terms of glare and when moving from dark to light areas.
- Studies* have shown that exposure to higher illuminance levels can result in feelings of increased alertness and better performance.”



Activity based workspaces



Engagement
and
experience

Appropriate spaces



Engagement
and
experience



Focusing
spaces



Collaboration
spaces



Social
spaces



Learning
spaces

Connectivity



Why connected lighting?

Solutions to challenges



Connectivity



Value

Delivering value
beyond illumination



Future proof

System is flexible,
future proof and
upgradable



Insight through data

Connectivity delivers
granular insights via data
to ensure optimization
takes place



Comfort and control

Employee comfort and
control is increased,
whether for closed
offices, boardrooms or
even open plan spaces

“ Our hope is that other
developers will follow this
lead and endeavour
to **create innovative
buildings that are in a
league with The Edge.**”

- Annemarie van Doorn, Dutch Green Building Council

The Edge



“ Innovation is our highest
priority at Deloitte and
we want our employees
to create a more intuitive,
comfortable and
productive environment.”

- Erk Ubels, CIO Deloitte, the Netherlands

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Summary

- ✓ Change is constant → plan for future changes, flexibility is king
- ✓ Unlocking human potential in a work environment will bring the most business value
- ✓ The 4 main drivers of change are:
 - ✓ Green Buildings
 - ✓ Health and Well Being
 - ✓ Engagement & Experience
 - ✓ Connectivity

Implications → The occupant at the center



Thank you